As the supervisors had no other medical background than the survey-related training, the need was felt for a rigorous on-the-spot supervision of data collection. The medical doctors and the physiotherapist reviewed carefully all questionnaires with the supervisors, in particular the questionnaires for the disabled and the vaccine questionnaire; in case of any doubt regarding the validity of the data collected, they examined the disabled personally. Roughly 75% of all disabled were examined by a doctor or a physiotherapist.

3.4 Data analysis

Data entry and data analysis relied on EpiInfo6 software. Double data entry, by two different persons, provided a rigorous way to minimise errors on data entry. Prevalence from sample data, and *95% confidence intervals* [95%C.I.] were calculated using EpiInfo6 C-sample procedures accounting for the cluster sampling methodology.

4. Results

Note : 'n' indicates the absolute numbers in the sample. 95% C.I. = 95% confidence interval limits.

4.1 Description of population sample

Out of 1212 households surveyed in 38 clusters, 9 refused to provide data (response rate : 99%).

Table 1 : Characteristics of the population sample

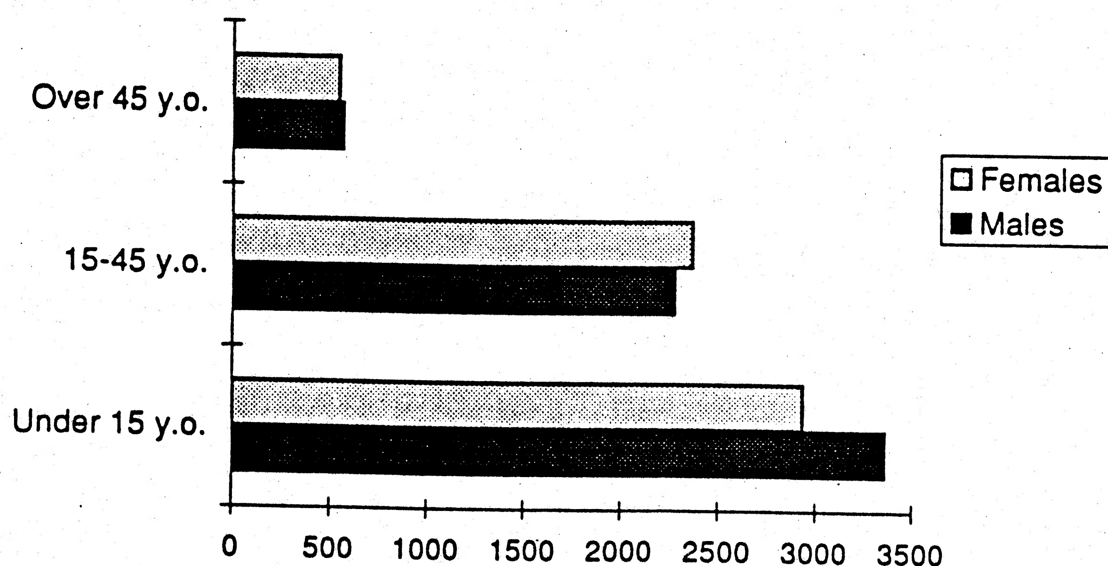
	Under 15 y.o.	15 y.o. and over	Total
Males	3,364	2,848	6,212 (51%)
Females	2,937	2,916	5,853 (49%)
Total	6,301 (52%)	5,764 (48%)	12,065 (100%)

Average number of people per household : 10

Table 2 : Returnees in population sample

Status	n (%)
Residents	8,900 (74%).
Returnees	3,050 (25%).
Unknown	115 (1%)
Total	**12,065 (100%)**

Figure 1 : Age and sex distribution of the population sample. n=12,065



4.2 Disability and rehabilitation needs

In total, 275 persons meeting the criteria for inclusion in the survey were identified during the house-to-house survey. Of these 36 (13%) were not present at home, and could not be seen and interviewed personally, but some information was provided by a proxy informant. One disabled was found in every 4 households.

Table 3 : Disabled in sample, according to the criteria for inclusion in the survey

Criteria for inclusion	n	(%)
Adult or child older than 18 months :	265 *(100%)*	96%
Cannot walk normally	162 *(61%)*	
Cannot move hands or arms normally	63*(24%)*	
both	40*(15%)*	
Child younger than 18 months :	10	4%
Absence of one limb, OR inability to move arms or legs normally, OR any deformity of limbs or trunk		
Total	275	100 %

Table 4: Disabled: residents and returnees. Proportion per 1,000 population

	n	per 1000 [95%C.I].
Residents	211	24 [20-27]
Returnees	63	21 [16-25]
Unknown	1	-
Total	275	23 [20-26]

Table 5: Disabled per age and sex. Proportion per 1,000 population

	Under 15 y.o.		15 y.o. and more		Total	
	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]	n	per 1000 [95% C.I.]
Male	49	15 [11-19]	143	50 [43-57]	192	31 [27-35]
Female	41	14 [10-18]	42	14 [11-18]	83	14 [11-17]
Total	90	14 [11-18]	185	32 [28-36]	275	23 [20-26]

Figure 2 : Disabled, per cause of disability : under 15 y.o. n = 90.

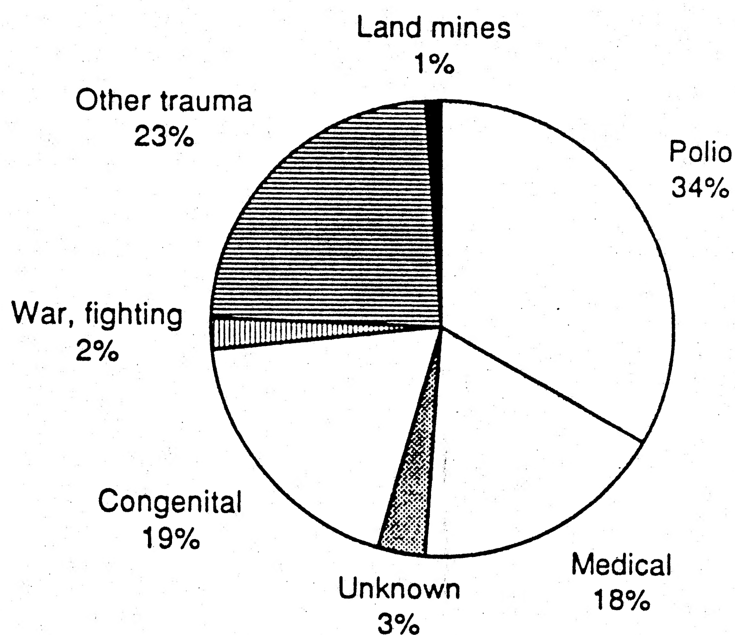


Figure 3 : Disabled, per cause of disability : 15 y.o and over. n = 185.

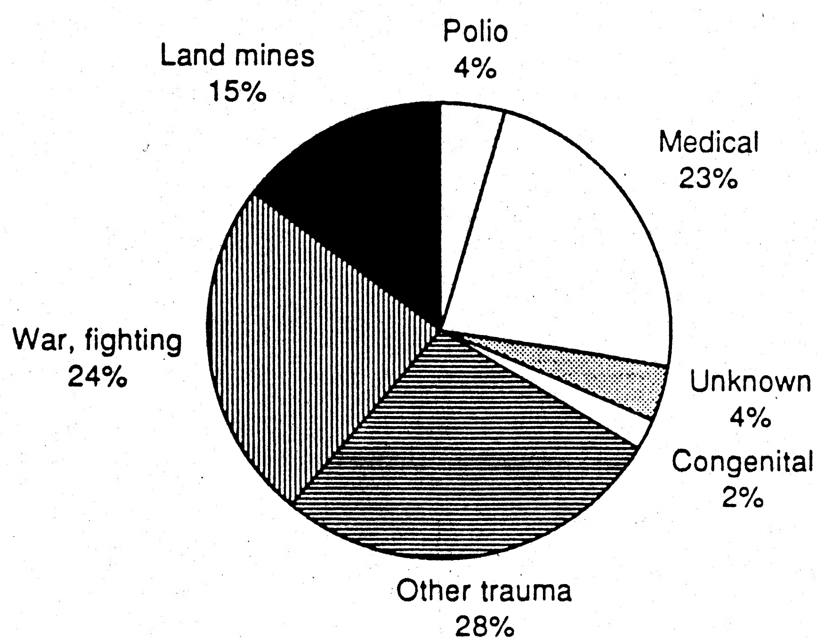


Figure 4 : Disabled, per cause of disability : females. n = 83

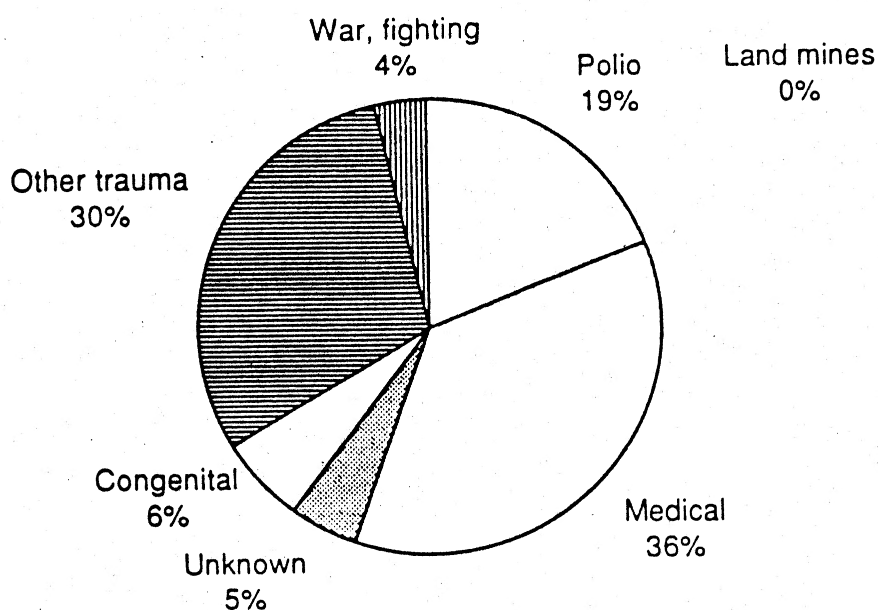


Figure 5 : Disabled, per cause of disability : males. n = 192

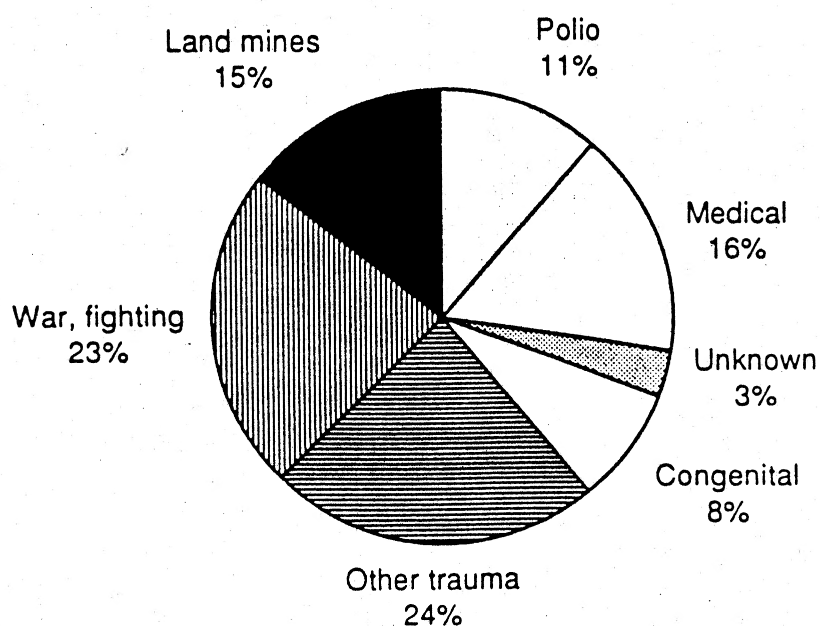


Table 6: Disabled following mine injury, per age and sex. Proportion per 1,000 population

	Under 15 y.o.		15 y.o. and more		Total	
	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]
Male	1	0.3 [0-0.9]	27	9.4 [4.7 - 14.2]	28	4.5 [2.3-6.7]
Female	0	0	0	0	0	0
Total	1	0.2 [0-0.5]	27	4.7 [2.3-7.0]	28	**2.3 [1.2-3.4]**

Table 7: Disabled following polio, per age and sex. Proportion per 1,000 population

	Under 15 y.o.		15 y.o. and more		Total	
	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]
Male	16	4.8 [2.6-7.0]	6	2.1[0.5-3.7]	22	3.5 [2.0-5.0]
Female	14	4.8 [2.4-7.1]	2	0.7 [0.0-1.6]	16	2.8 [1.5-4.0]
Total	30*	4.8 [3.0-6.5]	8	1.4 [0.4-2.4]	38	**3.2 [2.1-4.2]**

* 3 of these cases received an injection before the onset of paralysis, and would be excluded, should WHO case-definition be strictly applied.

Table 8: Disabled following war or fighting injury, per age and sex. Proportion per 1,000 population

	Under 15 y.o.		15 y.o. and more		Total	
	n	per 1000 [95%C.I.]	n	per 1000 [95%C.I.]	n	per 1000 [C.I.]
Male	2	0.6 [0-1.4]	42	14.7 [9.9 - 19.5]	44	7.0 [4.9-9.2]
Female	0	0	3	1.0 [0.0-2.5]	3	0.5 [0-1.3]
Total	2	0.3 [0-0.7]	45	7.8 [5.3-10.3]	47	**3.9 [2.7-5.0]**

Table 9: Rehabilitation needs: disabled per 1,000 population (n= number of disabled)

	n	per 1000 [95%C.I.]
Disabled who need orthopaedic devices	204	17.0 [14.6-19.2]
Disabled who don't need orthopaedic devices, but need other rehabilitation services	49	4.1 [2.9-5.1]
Disabled who cannot benefit from rehabilitation	10	
Unknown*	12	
Total	**275**	

* Disabled not present at home, with unclear rehabilitation needs

Table 10: Rehabilitation need, orthopaedic devices per 1,000 population (n = number of devices).

	Total needs : met needs + unmet needs*				Unmet needs
	<15 y.o. n	>=15 y.o. n	Total n	Rate per 1000 [95%C.I]	n (% of total)
Prostheses :					
upper limb	1	5	6	0.5 [0.1-0.9]	6 (100%)
lower limb	2	22	24	2.0 [1.2-2.8]	4 (16%)
Ortheses					
upper limb	11	28	39	3.2 [2,2-4.2]	38 (97%)
lower limb	57	42	99	8.2 [6.6-10.0]	87 (88%)
Orthopaedic shoes	36	37	73	6.0 [4.1-8.0]	67 (92%)
Wheelchair	2	22	24	2.0 [1.1-2.8]	22 (92%)
Stick, walker	40	57	97	8.0 [6.6-9.4]	69 (71%)

Total : 362 devices for 204 persons

**Met needs : the disabled was found to be already equipped with the orthopaedic device(s) needed.*
Unmet need : the disabled was not yet equipped with the device(s) needed.

Figure 6:. Rehabilitation needs, orthopaedic devices in sample. n= 362 devices (204 persons).

Met needs : the disabled was equipped with the device(s) needed. Unmet need : the disabled was not equipped with the device(s) needed.

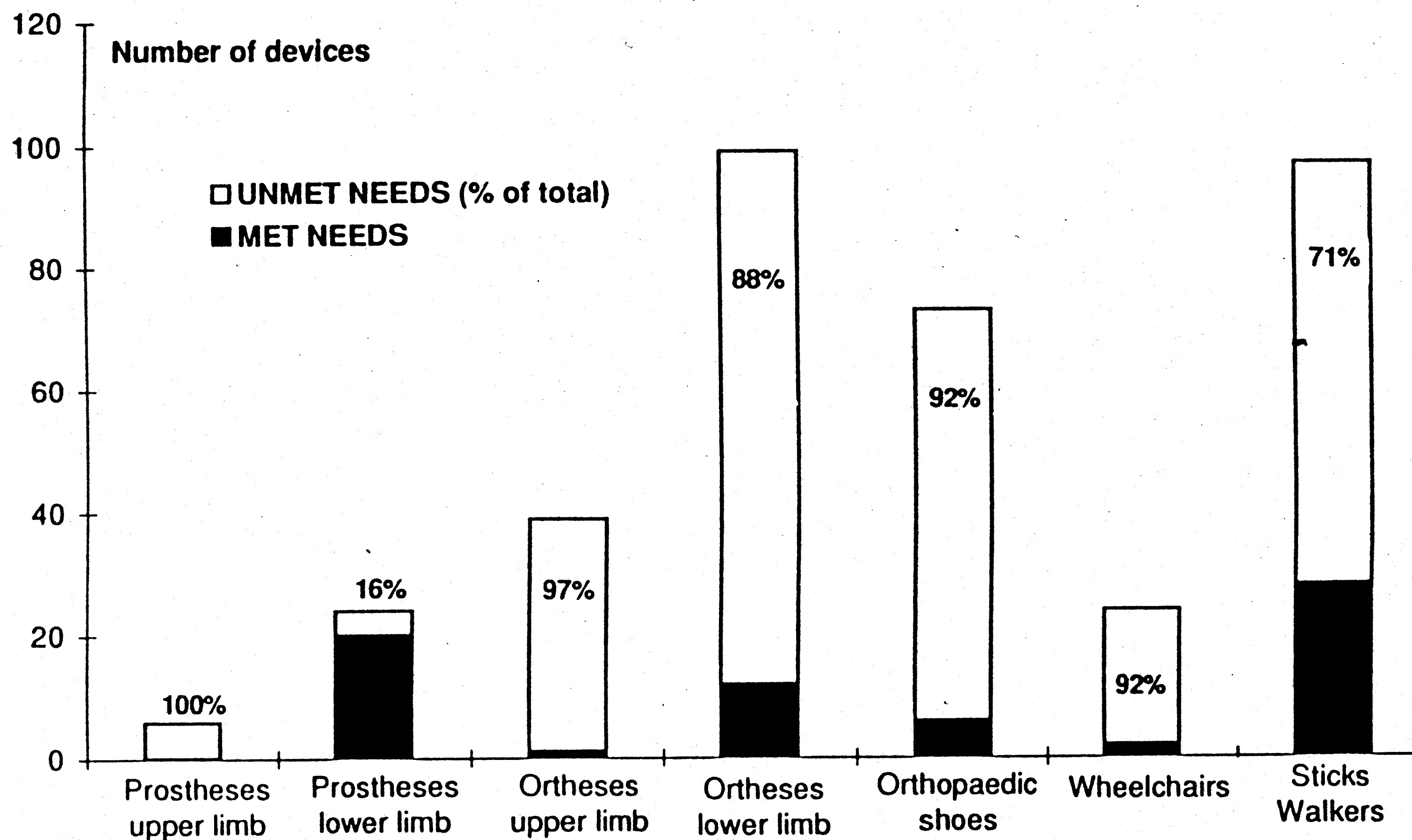


Table 11 : Awareness of the community as regards existing rehabilitation services

Response to the question : did the disabled, or his/her family, know before the survey, that help can be provided to the disabled in Kandahar City?

	n (%)
The family knew	24 (9%)
The family didn't know	231 (84%)
No answer	20 (7%)
Total	**275 (100%)**

Table 12: Unmet needs for orthopaedic devices (orthopaedic devices per 1,000 population), and time to cover needs, according to present capacity of rehabilitation services.

	Unmet needs per 1000 [95% C.I]	Unmet needs in survey area population (1)		Monthly production of devices(2)	Time to cover unmet needs in survey area (3) (rounded)	
		Lower estimate	Upper estimate		Lower estimate	Higher estimate
Prostheses	0,8 [0.3-1.4]	136	577	75	2 months	8 months.
Ortheses	10.4 [8.6-12.2]	3364	5212	26	12 years	17 years
Orthopaedic shoes	5.6 [3.6-7.5]	1542	3213	40	3 years	7 years
Wheelchairs	1.8 [1.0-2.7]	428	1157	16	2 years	6 years

(1)Absolute figures.
Lower estimate : unmet needs, per 1000 population (lower limit of confidence interval) x an estimated population of 428,390 in survey area
Higher estimate : unmet needs, per 1000 population (higher limit of confidence interval) x an estimated population of 428,390 in survey area

(2) Figures from ART workshop, (prostheses) and HI workshop (other devices) in Kandahar City. These figures give the maximum production, not the actual production, of orthopaedic devices.

(3) Time needed to cover actual needs in survey area, if these services were working full time to meet the needs of the survey area. However, rehabilitation services in Kandahar cater for an area extending beyond this area. Roughly 50% of the services are provided to patients NOT belonging to the sampled population.

4.3 Oral polio vaccine coverage survey

NB : A nation-wide mass immunisation campaign was conducted from June 16 to June 21, 1996, and overlapped the data collection for this survey. Doses given during this campaign were recorded separately.

Age group evaluated: 12-59 months.

First interview: 13/06/1996 Last interview: 30/06/96

Total clusters: 38

Total children in survey: 327 Sex ratio M/F: 0.92 Average per cluster: 8.6

Total number of households: 136 Average number of households per cluster: 2.4

- **Oral Polio Vaccine (OPV) coverage, excluding doses given during the mass campaign.**

	Total card		Total card + history	
	N	%[95% CI]	N	% [95% CI]
OPV 1	61	19% [11-27]	195	60% [48-71]
OPV 2	32	10% [5-14]	110	34% [23-45]
OPV 3	11	3% [1-6]	43	13% [7-20]

Card : dose given as certified by an immunisation card. History : dose given according to caretaker.

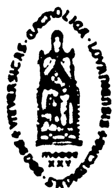
- **Doses given during the mass immunisation campaign**

Total clusters surveyed AFTER the immunisation campaign : 21

Total children: 183 Number who received a dose during the campaign: 92 (50%).

(Caution : this sub-sample cannot be taken as representative of the study population.)

UNIVERSITE CATHOLIQUE
DE LOUVAIN



Faculté de Médecine

Département de Santé Publique
Unité d'Epidémiologie

HANDICAP
INTERNATIONAL

Medical Programs using appropriate technology to rehabilitate handicapped persons

A HOUSEHOLD SURVEY IN KANDAHAR PROVINCE, AFGHANISTAN

June 1996

DISABILITY PREVALENCE

REHABILITATION NEEDS

ORAL POLIO VACCINE COVERAGE

FINAL REPORT

This survey has been funded by the European Community Humanitarian Office (ECHO)

5. Discussion

5.1 Validity of survey results

5.1.1 Sampling frame

Nomadic populations were not included and represent a high-risk group for disabilities.

Kandahar City

Kandahar municipality confirmed that the list of mosques, and corresponding number of households established by the survey team, was complete. However it doesn't include the army area, where access is forbidden. A population of 5,000 persons (soldiers and Talibans, with their families) is estimated to live in this area. They might represent a population at higher risk of disabilities related to land mines, war and fighting, but they represent only 1% of the total population surveyed.

Dand, Arghandab and Panjwai districts

We tried to compare our list of villages with the list established by UN drugs in 1994 (this list doesn't include Kandahar City). Comparison proved difficult because one village may have different names, and the entity reported (villages, or mosques within the village) differs between sources.

In Dand district, several villages turned out to be missing in the sampling frame. We estimated that these could account for approximately 25% of the households in the district, one third of these missing households being located in mined areas.

As a consequence of these high risk groups missing from the sampling frame, disabilities might have ben underestimated.

5.1.2 Total population

Total population in the survey area was estimated by multiplying the number of households in the sampling frame (HI list) by the average size of an household (10 in the survey sample), giving a total number of 428,390 persons. However, some villages were missing (see above); the number of households might have been sometimes overestimated by the informant (mullah, or local leader); on the other hand, some remote groups of households might have been forgotten in the list.

Other sources are data used by UNICEF and UN drugs (UN agencies).

- UNICEF (1996) uses a compilation of estimations, not accounting for population flows related to the political instability in the region. HI figure is 60% of UNICEF figure (this percentage varies according to the area).

- UN drugs data are based on the number of families as provided by local leaders in 1994. The case definition for *family* is not clear and might not be comparable with the case definition we used for *household*. Applying a number of 10 per family, total population from this source is 30% lower than HI figure (districts only, as Kandahar City was not included in UN drugs census).

Given the dubious quality of available population data, we came to the conclusion that our sampling frame currently offers the least unreliable estimate of the total population in the survey area. (See annex 9.4).

5.1.3 Response rate and data on women

To collect data on women in this particular Islamic environment initially was a challenge. Intensive and specific training of surveyors, information to the community and support from local authorities led to a high response rate (99%) from the surveyed households concerning the population data. The presence of a female team has been a key determinant in getting information about the disabled females. Given also the sex ratio in the age category 15-45, we believe that women census was not biased.

5.1.4 Ascertainment of outcome

Roughly 75 % of the disabled were examined personally by a qualified doctor or physiotherapist.

5.2 Interpretation of survey results

5.2.1 Population sample

The age pyramid shown in figure 1, shows an excess of males in the under-15 age group (sex ratio M/F of 1.15). Young males make 54% of the male population, whereas young females make 50% of the female population.

Higher mortality among young women is unlikely, as the M/F sex ratio in the under-5 population surveyed for OPV coverage, is 0.92.

Unconscious bias in reporting could be attributed to a different age perception between the 2 sex. Often exact age is not known, and young girls below 15 y.o. could be reported as adults after puberty; earlier than young boys. If this was true however, females should largely outnumber males in the 15-45 age-group, which is not the case.

Conscious bias in reporting might be explained by a social preference for males, with a tendency to overestimate the number of young boys in the family. Some suggested that young females could have been underreported, because of their economical value (bride price).

None of these hypothesis has been tested.

5.2.2 Prevalence of physical disability

We review here some data from other countries for comparison

Table 13: Comparison of disability surveys

Country	Year	Case definition	Age group	Methods and sample size	Setting	Results
Malaysia[6]	1989	'Locomotor disability'	Above 7.y.o.	Household survey, no sample size.	Rural	39/1,000
Thailand[7]	1989	'Locomotor disability'	All	Survey by Village Health Communicators, one community. Sample size ?.	Rural	3.1/ 1,000
Botswana[8]	1990	'Difficulty with mobility'	All	Door to door survey, one village only. Sample size ?	Rural	9.1/ 1,000
Jamaica[9]	1992	'Motor disability'	Children 2-9 y.o.	Population based survey. One parish, 5,468 children.	Rural	4/1,000
USA[10]	1992	Physical disability*	Under 17 y.o.	Household survey 97,133 children	National	5.8/1,000
Bangladesh[11]	1995	'Movement disability'	All	House to house survey, 1,906 persons.	Rural	13/1,000
Afghanistan	*1996*	*Physical disability not due to old age:*	*All*	*Household survey 12,065 persons*	*Rural /urban*	*23/1,000*

* Compiled from published data : cerebral palsy + impairment deformity of back, side, foot, or leg + paralysis of any kind + missing legs, feet, toes, arms, hands or fingers + head or spinal cord injury + impairment, deformity of finger, hand, or hand.

Although case definitions do not always coincide, it is clear *that the general prevalence of disability is very high in Afghanistan*. A survival bias might also hamper comparisons. Conditions of life are extremely hard in Afghanistan : life expectancy, and mortality rates are amongst the worst in the world, and much worse than in any country quoted above[12]. The disabled are more likely to die earlier, and therefore *prevalence* of disability will appear less than it would be if disabled could live as long as in other countries.

Survey findings don't suggest any difference in disability prevalence between returnees, and the resident population.

5.2.3 Causes of physical disability

- *The greatest single cause of disability is related to war, including land mines injuries*. However, both war-related disabilities, and mine-related disabilities, are *found almost exclusively in males over 15 y.o*, who suffer a rate of disability more than three times the rate of females, or under-15s.

In our sample, we didn't find any woman disabled by mines, and only one person in the under-15 age-group. Medical causes are mainly responsible for disability among women. These causes include hemiplegia, osteomyelitis, and some cases of malnutrition among young children, who would strictly speaking meet the criteria for inclusion in the survey (for instance, child over 18 months unable to walk). Poliomyelitis is the leading cause of disability among under-15 children (34% of disabilities).

- We studied only disability related to land mines. However, most of the victims of land mine accidents die in the blast (55% according to a recent study in Afghanistan[13]). The same study also showed a very low risk of land mine accident in adult females and in under-14 children. Women, who spend most of their life indoors, are less exposed to the risk. In children, the case-fatality rate from land mine accidents might be higher[14], resulting in even less disability.

The prevalence of limb amputation found in our study (2/1000) is lower than that found in the previously quoted study (5.7/1000, computed from published data, in Afghanistan[13]); and comparable to data collected in Mozambique (3.2 and 2.3/1,000 [15]).

- *In the sample, poliomyelitis causes more disabilities than land mine accidents*. In the under-15 age-group, the prevalence (4.8, C.I.: 3.0-6.5]) is in the expected range for a country with poor sanitary conditions and immunisation programme. In 1983, a WHO document compiled the results of 103 polio lameness survey in developing countries. Approximately one-third of surveys have reported rates of 2 or less per thousand (low), one third rates of 3-4 per thousand (moderate) and one third rates of 5 or greater per thousand[4].

5.2.4 Rehabilitation needs and existing rehabilitation services in Kandahar City.

5.2.4.1 Rehabilitation needs in sample

It has to be emphasised that this study *did not take into account the severity of the disability* when assessing rehabilitation needs. While there is no doubt that a prosthesis improves dramatically the quality of life of an amputee, benefits from orthopaedic devices other than prostheses are not always that clear, and should be carefully evaluated in relation with the individual lifestyle and environment. For instance, a patient suffering from drop foot as a polio sequel, might benefit or not from an orthesis and orthopaedic shoes, depending on his lifestyle. Such a careful evaluation was not possible under the study field conditions, and needs in ortheses might have been overestimated in some cases.

In this study, most needed orthopaedic devices were lower limb ortheses (8.2 devices per 1000 population), stick or walker (8 per 1000 population) and orthopaedic shoes (6.1 pairs per 1000 population). Ortheses and shoes imply a very high workload for the rehabilitation services, as close follow-up, regular fitting, and physiotherapy, are required. Only 2 lower limb prostheses were needed per 1000 population. The differences in needs prevalence reflect a wider range of disabilities requiring orthesis and orthopaedic shoes (poliomyelitis, hemiplegia, club foot...).

Most of the needs for orthesis and orthopaedic shoes were not covered (88%, and 92%, respectively), whereas this was the case for only 16 % of lower limb prosthesis needs.

Before the survey, the assumption was that in one of the most heavily mined province in Afghanistan, amputees would be the largest group of disabled, and make up the highest workload for rehabilitation services. It came as a surprise that the needs in lower limb prostheses were less important that the needs in other devices, and also, that most of the disabled in needs of a lower limb prosthesis were already equipped. There are several possible explanations. First, the problem of land mines accidents has been given wide publicity in the last years, and rehabilitation services for amputees were given priority. Second, land mines create more 'visible' problems: they kill, or cause severe disability. The emphasis on land mines led to some underscoring of other causes disability.

It was reported several times by the survey team, that some patients previously equipped with orthopaedic devices (particularly orthesis, and shoes) were in fact *not* using them. Poor patient adherence has been a major concern for rehabilitation services in the region for quite a long time, but was never properly investigated. A new technology, allowing the production of more comfortable orthopaedic devices, is to be implemented soon, and should improve patient adherence. However, patient adherence is a complex issue and deserves a deeper analysis.

5.2.4.2 Time to cover rehabilitation needs in the population

Rehabilitation needs in the sample were extrapolated to the total population, to compute needs in absolute figures (for instance, total number of prostheses needed in the population). However, this faces several difficulties :

1. the main problem has to do with unreliable population data (see discussion above). Population might increase in a near future due the arrival of refugees coming back from Pakistan (returnees).

2. some high-risk populations were absent from our sample frame, as mentioned before.

3. another problem relates to the exact area covered by rehabilitation services in Kandahar. This area extend beyond the area surveyed.

As a consequence, the "time to cover existing needs" as presented in table 11, can only *underestimate real needs*. Despite this underestimation, it is obvious from the table, that *the production of ortheses and orthopaedic shoes in Kandahar, is largely insufficient.*

5.2.5 Awareness of existing services

Only 9 % of the disabled in our sample were aware of the availability of rehabilitation services. One reason certainly is that these services in Kandahar City are operational for less than one year. However, the decision to actively improve the information concerning these services among the target population, should take into account that services are already overloaded. Increasing their workload without increasing their capacity might result in a drop in performance.

5.2.6 Oral Polio Vaccine (OPV) coverage

Children 12-59 months old were included in this survey. Routine immunisation programmes in Afghanistan target children below 2 years, whereas mass immunisation campaigns target children below 5 y.o. For the third year consecutively, nation-wide mass campaigns were conducted in the country.

In our survey, few children had an immunisation card, which apparently is given only to under-2 y.o. As a result, there is a wide disparity between OPV doses certified by card, and doses given according to the caretaker. These cards proved a difficult tool to evaluate the immunisation coverage. Dates of doses given for DPT1-2-3 and OPV 1-2-3, and for OPV 4 and measles, are to be written in the same box. When only one date is written, it is impossible to know whether 2, or 1 antigen has been given; and if only one, which one. In case of doubt, we assumed that it was OPV. Our figures therefore overestimate the coverage as reported on card. Coverage as estimated from caretaker's history, is equally likely to be overestimated.

Despite this overestimation, the coverage appears distressingly low, with only 13% [95% C.I.: 7-20] of the children having received 3 doses of OPV (immunisation card, or caretaker's reporting).

The mass immunisation campaign took place during data collection for our survey. Doses given during the campaign were registered separately to harmonise data collected prior, and after the campaign. Information concerning the dose given during the campaign is available only for a limited sample of children, of which 50% received this dose (92/183, 21 clusters, mainly in Panjwai district). This figure should be interpreted with caution as this sub-sample is not representative of the study population.

6. Conclusions

The objectives of this survey were to study the prevalence, and causes of disability, in Kandahar Province in Afghanistan, and to assess rehabilitation needs. Neither the *severity of the disability, nor the quality of the rehabilitation services provided,* have been evaluated.

Some groups at high risk for disability were not included in the survey (nomadic populations, people leaving in military barracks and in some mined villages). The prevalence of disability might therefore have been somehow underestimated, but we don't believe that the validity of the results is severely affected.

The *general prevalence of disability is very high* in Afghanistan. In our study, the proportion of disabled among males over 15 y.o. was three times the proportion of disabled among children, or among women. Causes related to the civil war (fighting, or land mines accidents, affecting soldiers or civilians), were the leading cause of disability, but they affect almost exclusively male adults.

The leading cause of disability among under-15 y.o.was poliomyelitis. The leading causes of disability among women were medical (for instance, hemiplegia, osteomyelitis sequels....).

In our sample, more people had been disabled by poliomyelitis than by land mines injuries. Poliomyelitis was also responsible for a higher workload for rehabilitation services. However, it should be remembered here that land mines *kill more that they disable*, and tend to cause more severe disability than poliomyelitis.

Most leg amputees in our sample were found to be already equipped with a prosthesis (in terms of the quantity of devices - quality was not evaluated). Unmet needs in the population surveyed could be covered in less than one year, under the assumptions (1) that the workshop operates at its optimal capacity and (2) that only the area surveyed is serviced. However, none of these assumptions is true. In fact, there is a 5-month waiting list for prostheses (ART staff communication). The production has been far from optimal in the last months, and roughly 50% of the patients come from districts not included in the survey, or even from different provinces.

Unmet rehabilitation needs for disabled other than leg amputees, are enormous and far outweigh the production capacity of HI orthotic workshop in Kandahar City. Poor adherence to treatment was noticed for some disabled found already equipped with orthopaedic devices. Rehabilitation services offered in Kandahar City are not known to the majority of the population.

A minority of children between 12 and 59 months, were fully immunised against poliomyelitis. A nation-wide mass immunisation campaign took place during the survey. In the districts surveyed after the mass immunisation campaign, only 50% of the children had received an OPV dose during the campaign. (This sub-sample is not representative of the study population).

7. Recommendations

7.1 Recommendations to agencies in charge of immunisation in Kandahar

Poliomyelitis immunisation coverage needs to be improved. National immunisation campaigns show that efforts are being made in that respect. However, coverage is still low particularly in rural area. The immunisation cards used allow confusion between the different antigens given. Some improvement of the card is advisable.

7.2 Recommendations to agencies in charge of mine awareness programmes in Kandahar

Mine awareness programmes should be targeted at high-risk groups (men, and children). Women's health faces greater challenges than land mine injuries. This should be taken into account when allocating resources aimed at improving women's health.

7.3 Recommendations to rehabilitation services

Prosthetic workshop.

In theory, the services rendered by ART prosthetic workshop in Kandahar City could be sufficient to cover the needs in the area surveyed. However, the workshop is not operating at his optimal capacity of 75 prostheses per month, and *priority should be given to achieve this objective*.

The exact catchment area of the workshop extend beyond the area surveyed : it is unclear and should be determined. The origin of the patients is systematically recorded in the files, but this information is not standardised, and not exploited. Simple improvements of the recording system could provide useful information as regards the catchment area.

A better knowledge of the catchment area might indicate a need for the decentralisation of services. There is a long waiting list in the workshop : this however should not be taken as an indication that the *maximum* production capacity of the workshop should be increased. Indeed if the catchment area is so large that the workshop could not meet the needs, decentralisation of services might be a better option.

The production of upper-limb prostheses, although meeting a need, is not an option at the moment, due to operational problems.

Orthetic workshop

Unmet needs (particularly ortheses, and orthopaedic shoes) largely outweigh the production capacity of existing services. However, the survey raised the hypothesis that some of the devices produced are not being used by the patients.

Priority should be given to assessing that hypothesis. We suggest that a survey be conducted among a small sample of at-risk patients (for instance, polio children). This survey could measure the problem and research the causes of this low adherence, in order to improve the services provided.This problem being tackled, second priority should be given to increasing the capacity of existing services.

Awareness of the disabled population

Community awareness regarding the availability of rehabilitation services should only be increased after insuring the capacity of services to cope with an increased workload. At present, an increased demand on overloaded services would result in a drop in the quality of services offered.

7.4 Recommendations to funding agencies

Priority should be given to the prevention of disability, in particular poliomyelitis immunisation, demining and (targeted) mine awareness programmes.

The orthotic workshop in Kandahar City is largely insufficient to meet the needs of the disabled in the region and should be developed.

Systematic evaluation of all programmes is recommended.

8. Bibliography

1. UNIDATA. Kandahar Province, Afghanistan. A socio-economic profile. 1991; Afghanistan.

2. Mine Clearance Planning Agency (MCPA). Report of the national survey of mines situation. Afghanistan. 1993; Afghanistan:

3. Lwanga S, Lemeshow S. Sample size determination in health studies: a practical manual. Geneva: WHO, 1991.

4. Bernier R. Prevalence survey techniques for paralytic polio : an update. 1984; Geneva: WHO. EPI/GEN/84/3*:

5. Expanded Programme on Immunization, World Health Organization. The EPI coverage survey. Geneva: WHO, 1991.

6. Osman A, Rampal KG. A study of locomotor disabilities in a Malay community in Kuala Selangor. Med J Malaysia 1989; 44:69-74.

7. Swaddiwudhipong W, Amaritchavarn V, Boonyabuncha S. Prevalence of disabling conditions in a rural northern Thai community: a survey conducted by village health communicators. Southeast Asian J Trop Med Public Health 1994; 25:45-49.

8. Lundgren Lindquist B, Nordholm L. Community-based rehabilitation--a survey of disabled in a village in Botswana. Disabil Rehabil 1993; 15:83-89.

9. Paul TJ, Desai P, Thorburn MJ. The prevalence of childhood disability and related medical diagnoses in Clarendon, Jamaica. West Indian Med J 1992; 41:8-11.

10. Anonymous. Disabilities among children aged < or = 17 years--United States, 1991-1992. MMWR Morb Mortal Wkly Rep 1995; 44:609-613.

11. Hosain GM. Disability problem in a rural area of Bangladesh. Bangladesh Med Res Counc Bull 1995; 21:24-31.

12. PNUD. PNUD, editor. Rapport mondial sur le développement humain 1994. 1994; Paris: ECONOMICA.

13. Andersson N, Pahla da Sousa C, Paredes S. Social cost of land mines in four countries: Afghanistan, Bosnia, Cambodia, and Mozambique. British Medical Journal 1995; 311:718-721.

14. Mc Diarmid J. Deaths and injuries caused by land mines. Lancet 1995; 346:1167

15. Ascherio A, Biellik R, Epstein A, Snetro G, Gloyd S, Ayotte B, et al. Deaths and injuries caused by land mines in Mozambique [see comments]. Lancet 1995; 346:721-724.

Acknowledgements

The authors of this report are grateful to

- the Afghan survey team. Their commitment and rigor during the field work are the best guarantee of the quality of the data collected.

- the local authorities, for their co-operation. This survey could not have been done without their support.

- Handicap International team in Belgium, and in Afghanistan, for their participation and assistance.

- The European Community Humanitarian Office (ECHO), for the funding of this survey.

9. Annexes

9.1 Definition of commonly used terms

95 % Confidence Interval : [95% C.I.] : we cannot assume that the values found in a *sample* are exactly the same as the values in the *population* from which this sample is selected. The sample was randomly selected (by chance): a different sample would have given different results. The statistical theory provides tools to compute confidence interval, or confidence limits around sample values. We can assume, with 95% confidence, *that true population values* are comprised within these limits.

Sampling frame : the list that serves as a basis for drawing a sample.

Random cluster sampling : a particular sampling method used in surveys, where groups (clusters), rather than individuals, are randomly selected (that is, selected by chance) in the first stage.

Multistage random cluster sampling : the selection process applies to groups at more than one level. For instance, this survey selected individuals through a 3-stage cluster sampling. In the first stage, the villages, or mosques were randomly selected. In the second stage, the families were randomly selected in the village or mosque. In the third stage, all the individuals in the selected families were included in the survey.

Oral Polio Vaccine (OPV): the oral vaccine used to provide protection against polio. Three doses need to be given at one month interval, the first dose not earlier than one month after birth. Ideally, all children should have received 3 doses before the age of one year.

Poliomyelitis : a viral disease highly prevalent in most countries where effective immunisation programme are lacking. In a minority of cases, it affects the motor nerves and result in muscle paralysis. The extent and severity of the paralysis vary widely between individuals. Orthopaedic devices, together with physiotherapy, can compensate deficient muscles and prevent or correct deformities following the paralysis.

Prevalence : the number of cases of a disease (or people with a particular characteristic) existing in a specified population at a given point in time.

Prosthesis : orthopaedic devices aimed at replacing missing limbs, f.i. artificial legs.

Prosthetic workshop : workshop producing prostheses.

Orthesis : orthopaedic device aimed at compensating deficient muscles or nerves, or correcting deformities.

Orthotic workshop : workshop producing orthopaedic devices other than prostheses : ortheses, walking aids (walkers, sticks), wheelchairs, orthopaedic shoes. Technology and skills needed in an orthotic workshop are different from those required in a prosthetic workshop.

9.2 Questionnaires

9.2.1 Household questionnaire

9.2.2 Questionnaire for the disabled

9.2.3 Polio vaccine questionnaire

Needs assessment for Disabled people .
Kandahar Province - June 1996 - Household Questionnaire.

د معيوبينو ضرورياتو د تشخيص فورمه

Family refuse :
د کورنۍ عدم موافقت

Cluster n° — مرکز تجمع نمبر

Date : — نيټه

Village / Mosq : .... کلي - مسجد

Interviewers Name : .... سروې کوونکي نوم :

House Number : .... کور نمبر :

Name of head of house : .... د کور د مشر نوم :

Are there in this house :	NO نه	YES هو	آيا دي کور کښې په لاندې ډول خلک شته !
- People who are not able to walk properly ?	NO	YES	خوځ چي په پوره ډول تګ نشي کولای
- People who cannot use arms or hands properly ?	NO	YES	خوځ چه لاس یا بازوني کار نشي کولای .
- A baby who doesn't develop normaly ?	NO	YES	کوچنی چي په عادي ډول پرورښت نشي کولای .

If there is at least one Yes, go to next questions :
If all answers are No, there is no disabled in this house

که چیری لږ تر لږه یو ځواب (هو) وی نو لاندنیو پوښتنو ته ادامه ورکړی .

Number of male disabled : .... د نارینه معیوبینو شمیر

Number of female disabled : .... د ښځینه معیوبینو شمیر

Does the family accept the visit of a male supervisor (for male mayoub) or a female expatriate (for female mayoub)	NO نه	YES هو	کورنۍ باید موافق دي چه نارینه معیوب و نارینه سوپروایزر ښځینه معیوب و ښځینه خارجي ګروپ ته سپکاره کړي .

Number of people living there : .... کورنۍ د غړو شمیر

Are they returnees ?
(by definition, returnees are people who settled back in Kandahar Province after the mujahedeen took power in 1992)

NO نه — YES هو

راستانه شوي یاست (په دي معنی چه کله مجاهدین واکمن شول بیرته دوباره د کندهار ولایت کښي ځای پر ځای شویدي .

If no disabled person, fill anyway general data : که هم معیوب نه وي خو لاندني معلومات واخلي .

	Female ښځي	Male نارینه	
Under 15 years Old			تر ۱۵ کلنی نه لښته -
Between 15 and 45 Years Old			۱۵ کلنی څخه تر ۴۵ کلنی پوري
45 Years Old and more			د ۴۵ کلنی څخه لوړ
TOTAL			مجموعه

Cluster [ ] Household number [ ] Date : |____| |____| (day/ month)

Supervisor :

Village / Mosque :

Accept visit of supervisor: Y N

Disabled person present Y N

Adult or child older than 18 months		Child younger than 18 months	
Inability to walk 5 meters normally, and without help, lameness (not due to old age)	YES NO	Absence (partial or total) of one limb or more	YES NO
Inability to move hands and arms properly, not due to old age) (check both sides)	YES NO	Inability to move legs and arms properly OR strange movements	YES NO
		Deformation of limbs or trunk	YES NO

INCLUDED IN THE SURVEY YES NO

NAME DISABLED :
Address :

AGE |____| years

SEX : M F

RETURNEE : YES NO

(Somebody who settled back in Kandahar province after 1992 - when the Mudjahedeen took power)

How much difficulty does the person have to do her/his normal activities, inside and outside the house?

No difficulty at all	A little bit of difficulty	Some difficulty	Much difficulty	Cannot do

Systematic clinical examination. Write Y or N

	Absence, partial or total	Deformity	Spastic paralysis (stiff)	Flaccid Paralysis (floppy)	Contrac-ture	Absence of sensibility	Remarks
Upper limb, Right							
Upper limb, Left							
Lower limb, Right							
Lower limb, Left							
Trunk							

CLINICAL DIAGNOSIS:

Amputation	Polio	Paraplegic	Quadriplegic	Hemiplegic	Club foot	Other

CAUSE OF DISABILITY

Doesn't know	Land mines or UXO	Poliomyelitis*	Other cause**

If you don't know, or this is due to landmines, go to 'rehabilitation needs'

**If you ticked polio, check that all the criteria are met :*

Inability to walk normally	*YES*	*NO*
Flaccid paralysis (decreased muscle strength)	*YES*	*NO*
Normal sensation in the limb(s) (feels pinch)	*YES*	*NO*
Was the condition present at birth?	*YES*	*NO*
Did the paralysis increase in the weeks or months after the beginning of the disease?	*YES*	*NO*
Was the paralysis related to an accident or a trauma?	*YES*	*NO*
Conditions for polio are all there (3YES and 3 NO for the above questions)?	*YES*	*NO*
Did the child receive an injection in the buttocks fews days before the beginning of the paralysis?	*YES*	*NO*

*** If you ticked 'other cause' fill next table.; if not go to rehabilitation needs*

CONGENITAL ☐		TRAUMA (other than landmines or UXO) ☐		MEDICAL ☐
Club foot ☐	Other ☐	War, Fight ☐	Road accident ☐	
		Burns ☐	Other ☐	

REHABILITATION NEEDS

Can that person benefit from rehabilitation?	YES	NO	DOESN'T KNOW

IF YES , fill the table below.

	LOWER LIMB				UPPER LIMB	
PROSTHESIS Y N	LONG		SHORT			
NEEDS	One ☐	Two ☐	One ☐	Two ☐	One ☐	Two ☐
Already covered	☐	☐	☐	☐	☐	☐

ORTHESIS Y N	LOWER LIMB		UPPER LIMB	
NEEDS	One ☐	Two ☐	One ☐	Two ☐
Already covered	☐	☐	☐	☐

NEEDS	Orthopedic shoes ☐	Wheel chair ☐	Stick, walker ☐	Others (Physio..) ☐
Already covered	☐	☐	☐	☐

Did the family know before the survey that there is some help for the disabled in Kandahar City ? YES NO

Remarks :

Name Supervisor : ______________________________

Date visit : |______| |______| Cluster number |______|

Date of birth range : **from 15/ June/1991 to 14/June /1995 included**
OR AGE more than one year - less than 5 years (If born before mudjahedeen came back : not more than 10 months before)

					If no card : doses given according to caretaker		*Only if there is a card : copy dates*					
Child	**Household number**	**Date of birth OR age in months**	**SEX M/F**	**CARD Y/N**	**At birth Y/N**	**Other doses given**	**Polio 0 Date**	**Polio 1 Date**	**Polio 2 Date**	**Polio 3 Date**	**Polio 4 Date**	CAMPAIGN DOSE Y/N
1												
2												
3												
4												
5												
6												
7												
8												

9.3 Field data collection : planning and clusters visited.

Data collection planning, 13-30 June 1996

District	Village /mosk	HH	Th13	F	Sa15	Su16	Mo17	Tu18	We19	Th20	F	Sa22	Su23	Mo24	Tu25	We26	Th 27	F	Sa29	Su30
Kandahar City	Baba Je Masjesd	15	P			C														
Kandahar City	Atfag Jami ..	21	P		C															
Kandahar City	H. Sahidiq	300	P		C	C														
Kandahar City	Haji Fagheer	46	P		C	C														
Kandahar City	Haji Akhter Mohammad .	80	P		C	C														
Kandahar City	Samad Akhound Jama ..	47			P	C	C													
Kandahar City	Masjad yaka Jan	30			P	C	C													
Arghandab	Chekhchala	45			P	C	C													
Arghandab	Maragan Village	500			P	C	C													
Arghandab	Hadera Villge	2000						P	C											
Arghandab	" "	"						P	C											
Arghandab	Joe Lahore	600						P	C											
Arghandab	" "	"						P	C											
Arghandab	Loy Kuchni Monara	1300						P		C										
Dand	Karz	700						P		C										
Dand	Goshkhana	60						P		C										
Dand	Deh Bagh	100						P		C										
Panjwai	Salihan	1000										P	C							
Dand	Mashor Kalai	190										P	C							
Dand	Rorabat	1500										P	C							
Dand	" "	"										P	C							
Dand	Temorian ..	135										P		C						
Dand	Nakodak	200										P		C						
Panjwai	Muhaj-e-Rin	150										P		C						
Panjwai	Salewat	500										P		C						
Panjwai	Talukan	1500													P	C				
Panjwai	" "	"													P	C				
Panjwai	Rigwa	120													P	C				
Panjwai	Dei Dur	100													P	C				
Panjwai	Sapad Rawan	1000													P		C			
Panjwai	Zangiabad	1680													P		C			
Panjwai	Ghefar Shah	25													P		C			
Panjwai	Neliat	15													P		C			
Panjwai	Madressa	10													P		C			
Panjwai	Aslam Agha	30																	P	C
Panjwai	Sapad Rawan	1000																	P	C
Panjwai	Talukan	1500																	P	C
Panjwai	Rorabat	1500																	P	C

P = Preparation of data collection:contacts with local authorities, information about the survey and sampling of households

C = Data collection in the selected households

HH = Number of households as collected during the census survey (sample frame data)

9.4 Population data

A household survey in Kandahar; Afghanistan: disability prevalence, rehabilitation needs; oral polio vaccine coverage.

Population data available at the time of the survey

Source	Year	Method	Unit	City Kandahar	District Dand	District Arghandab	District Panjwal	Total Persons	Total Fam/HH
Previous data									
National Census (a)	1979	survey	persons	277508	NA	43047	72666	393221*	
			households	35271	NA	6617	9945		51833*
Unidata (b)	1990	survey+ estimations	persons	225430	115512	62029	92409	495380	
UNdrugs (c)	1994	survey	families	NA	7945	8527	4612		21084
idem	1995	update (?)	families	NA	6425	6717	9462		22604
Unops (d)	1995	unknown	families	NA	3888	5600	17465		26953*
Current estimations									
Unicef (e)	1996	estimations	persons	395671	133175	71513	106540	706899	
HI (g)	1996	survey	households	9658	7506	11180	14495		42839

*cautious for comparison: figure does not cover all areas

NA = information not available HH = household Unidata = UN office for statistics and data collection HI = Handicap International

Unops = United Nations Office for Project Services Un drugs = Afghanistan drug control and rural rehabilitation programme

(a) * last census organised in Afghanistan. Remained incomplete.

(b) * compilation of estimations (1979 census + growth rate of 2.5 %+ 5 percent reduction in population -war effets-) and data collected through oral interviews conducted by enumerators in 8 to 15 localities per district or sub-districts

(c) ** data collected through a baseline survey of all villages of concerned districts

(d) data not complete in Argandab; in Dand, only rural areas are included.

(e) based on highest population figure in between of Eighmy (?) and Unidata, applying a growth rate of 2.3%.

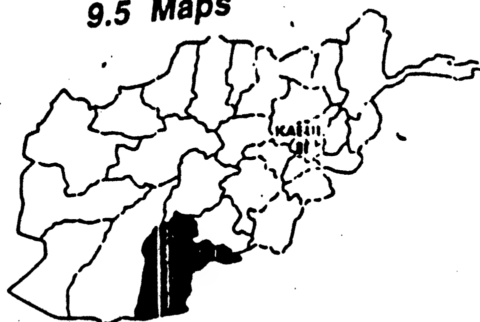
(g) data not complete in Dand (+- 75% covered); data of kandahar city does not include the army area (estimated as 500 households)

* *Afghanistan. Kandahar Province. A socio-economic profile. UNIDATA. A project of UNDP/OPS § UNOCA*

** *Afghanistan Drug Control and Rural Rehabilitation programme. AFG/89/580. Baseline survey. Kandahar Province. November 1994.*

ADMINISTRATIVE BOUNDARY MAP

OF KANDAHAR PROVINCE



Woleswali and Alaqadari boundary
Paved road
Province Center
Woleswali Center
Alaqadari Center

URUZGAN

KANDAHAR

ZABUL

Nesh
Ghorak
Khakrriz
Shah Walikot
Arghandab
Daman
Maywand
Dand
KANDAHAR
Arghistan
Maruf
Panjwai
Shega
Spin Boldak
HELMAND
N
Shorabak
Reg

0 20 50 100 km

Survey Area

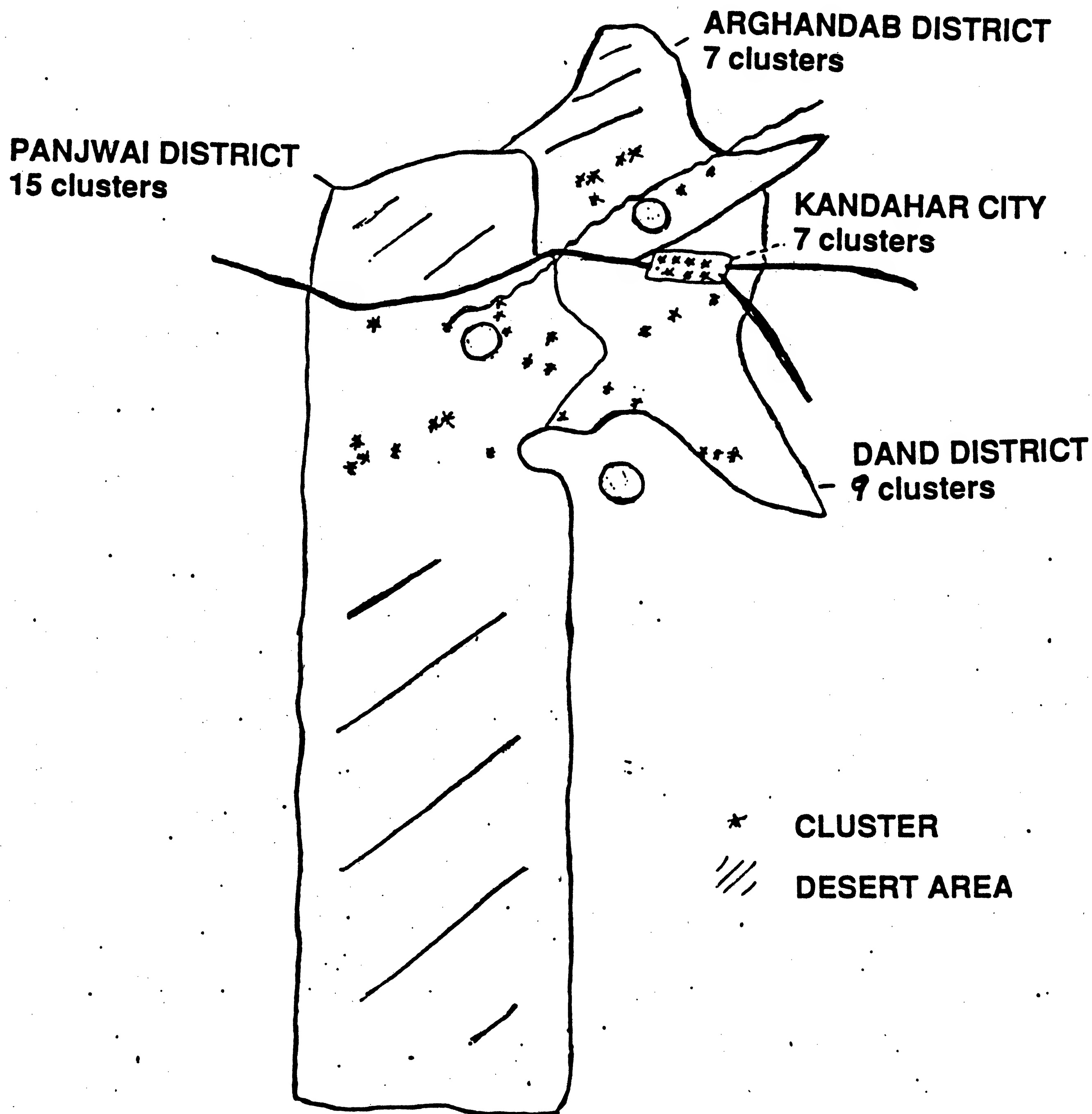

ARGHANDAB DISTRICT
7 clusters
PANJWAI DISTRICT
15 clusters
KANDAHAR CITY
7 clusters
DAND DISTRICT
9 clusters
CLUSTER
DESERT AREA

TABLE OF CONTENTS

TABLES AND FIGURES

LIST OF ABBREVIATIONS

ART	Afghan Rehabilitation Team
C.I.	Confidence Interval
ECHO	European Community Humanitarian Office
EPI	Expanded Programme on Immunisation
HI	Handicap International
n (in tables)	Absolute number in sample
NGO	Non Governmental Organisation
OPV	Oral Polio Vaccine
UCL	Université Catholique de Louvain
WHO	World Health Organisation

1. Executive summary

In January 1996, Handicap International (HI), a French-Belgian NGO, opened a rehabilitation unit in Kandahar City, in Afghanistan. HI requested the assistance of the Epidemiology Unit, Université Catholique de Louvain, in Belgium, to conduct a survey in the most populated districts of Kandahar province. The objectives of the survey were (1) to document the prevalence and causes of physical disability, and particularly the prevalence of poliomyelitis sequels and mine-related disabilities; (2) to assess rehabilitation needs; and (3) to evaluate the oral polio vaccine coverage.

A household survey took place in the region from June 13, 1996 to June 30, 1996, using a multistage random cluster sampling. Total population surveyed was 12,065 in 38 clusters.

Global prevalence of disability was 23 per 1000 in the population sample (95% Confidence Interval -C.I.-: 20-26), or one person disabled in every 4 households. This is very high compared to other countries. Causes related to the civil war (fighting, or land mines accidents, affecting soldiers or civilians) were the main cause of disability, but they affect *almost exclusively* male adults. The proportion of disabled among males over 15 y.o. was three times the proportion of disabled among children, or among women. Among the children under 15 y.o., the prevalence of poliomyelitis was 4.8 per 1000 (95% C.I.: 3.0-6.5); poliomyelitis was the leading cause of disability (34% of disabilities). Medical causes were responsible for the majority of disabilities among women. In our sample, more people had been disabled by poliomyelitis than by land mines injuries, and poliomyelitis was responsible for a higher workload for rehabilitation services (however land mines kill more often than they disable, and tend to cause more severe disability than polio) .

These data might be underestimated, as some high-risk groups were not included in the sampling frame (nomadic populations, people living in army barracks, or in some mined villages).

Needs for artificial legs in the area surveyed seem to be adequately covered. Unmet needs for other orthopaedic devices were important. Several surveyors reported a problem of adherence to treatment among the disabled already equipped with devices other than prostheses. Few of the disabled were aware of the existence of rehabilitation services in Kandahar City. We estimated the total needs in orthopaedic devices in the population (in absolute terms). Even accounting for unreliable population data, it is obvious that rehabilitation services in Kandahar are largely insufficient to cover the needs for orthopaedic devices other than prostheses.

The Oral Polio Vaccine (OPV) survey evaluated OPV coverage in the 12-59 months age group, before the first round of the 1996 mass immunisation campaign . Only 13 % (95% CI: 7-20) had received a third dose of OPV (certified by an immunisation card, or reported by a caretaker). Of the children surveyed after the mass campaign, 50% had received an OPV dose during this campaign.

Survey findings suggest that
(1) Men and children are priority targets for mine-awareness programmes, whereas women represent a low-risk population for mine accidents.
(2) *Theoretical* production capacity of the prosthetic workshop, seems to be sufficient to meet the needs of the population in the area surveyed. Priority should be given to raise the production of the workshop to its optimal capacity. If a need is felt for an increase in production beyond this capacity, decentralisation of services should be considered.
(3) Concerning the orthetic workshop, priority should be given to investigating the problem of patient adherence to treatmant. This problem being under control, increasing the production capacity of the workshop should be considered. Active community information concerning the availability of services is not advisable at the moment as services are already overloaded.
(4) Polio vaccine coverage should be improved.

2. Introduction

Due to several years of civil war, and to the total collapse of health services, disabled people are numerous in Afghanistan.

Rehabilitation needs are enormous. However, existing data are scarce and do not provide useful estimates of the quantity and type of handicap, making impossible any needs-based planning of rehabilitation services. Land mines injuries are said to be a major cause of disabilities.

Kandahar province is located in a strategic position, in the south-western part of the country, and was particularly affected during Russian occupation[1]. It is one of the most heavily mined provinces of Afghanistan[2]. Kandahar province has been relatively peaceful since it came under the control of an Islamic political movement, the Talibans, in 1994.

Rehabilitation services in Kandahar City are mainly provided by 2 non governmental organisations (NGO's). Afghan Rehabilitation Team (ART), an Afghan NGO, operates a prosthetic workshop since August 1995. In January 1996, Handicap International (HI), a French Belgian NGO, opened a rehabilitation unit providing other orthopaedic devices and services.

Handicap International requested the assistance of the Epidemiology Unit, Université Catholique de Louvain (UCL), in Belgium, to conduct a survey among the resident population of the area surrounding Kandahar City. The objectives of the survey were the following :

- to document the problem of disability, and in particular the prevalence of poliomyelitis sequels and mine-related disabilities
- to assess rehabilitation needs
- to evaluate the oral polio vaccine coverage

This document reports on the survey. It is the result of a close collaboration between Handicap International (in particular, Cecile Salort in Afghanistan and Vincent Slypen in Belgium, physiotherapists), and the Epidemiology Unit, UCL, Belgium (Dr I. Francois and M.L. Lambert, public health doctors, in Belgium, and in Afghanistan; Mrs Francoise Bertrand, statistician, for statistical aspects, and Pr. R. Tonglet, for the overall supervision and responsibility, in Belgium). This report was written by the two public health doctors.

Some definitions of commonly used terms can be found in annex 9.1. They should help the reader not familiar with basic survey methodology, or rehabilitation services.

This survey has been funded by ECHO (European Community Humanitarian Office).

3. Material and methods

3.1 Study population and study design

Study design : household survey, multistage random cluster sampling.

Study population : all the residents in the most populated districts of Kandahar province (Kandahar City, Dand, Arghandab, and Panjwai district). Age range for the Oral Polio vaccine coverage survey was between 12 and 59 months.

The population of the area surveyed was estimated to 428,390 before the survey (see annex 9.4).

Sample size :

- *Disability prevalence survey :*

The following formula was used to compute the sample size (n)[3]. Given the multistage cluster sampling methodology, this sample size was multiplied by an assumed design effect of 2.

$$n = Z^2_{(1-\alpha/2)} p(1-p)/d^2$$

p : estimated prevalence in the survey population. We used 5/1,000 as the anticipated prevalence of people with poliomyelitis sequels in the under-15 population[4], as specific output for this sub-sample was felt to be important.

$Z_{(1-\alpha/2)}$ = represents the number of standard errors from the mean; it is function of the confidence level (Z = 1.96 for confidence level 95%)

d : absolute precision. We used 2,5/1000.

The minimum sample size was 6,116 under-15. Assuming that the under-15 represent 50% of the total population, we multiplied this figure by 2, and total sample size was rounded to 12,000. The average number of persons per household was estimated to 10, and we therefore planned to visit 1,200 households.

- *Polio vaccine coverage survey*

We used the standard methodology recommended by WHO - EPI programme[5] (multistage random cluster sampling, minimum 30 clusters and 7 children per cluster). We decided to include at least 8 children per cluster.

Sampling frame : in the rural area, the sampling frame consisted of a list of all villages, and in Kandahar City, we used a list of mosques. These lists were established by the survey team prior to the survey. All villages and mosques in the survey area were visited by supervisors who collected population data. A total of 500 mosques and villages (*primary sampling unit*) for 42,839 households made up the sampling frame.

Sampling :

First stage cluster sampling : selection of the mosques or villages (38).

Each household in the sample frame was attributed a number, and 38 numbers were randomly selected from our sample frame, with replacement. The village or mosque where this household belonged, was selected as a cluster. The probability of selection was therefore proportional to the size of the village or mosque's population.

Second stage cluster sampling : using a simple random sampling methodology, 35 households were chosen in the cluster from a list provided by local authorities (usually the mullah). In few cases, no list was available and a random sample of households was chosen on a geographical basis. All persons living in the selected households were included in the survey.

When the primary sampling unit selected was too big, it was broken down into sub-units, and the above procedures were repeated.

3.2 Definitions

Household : all people living within the same compound. (Often, more than one family).

Disabled : a person meeting at least one of the criteria for inclusion in the survey:

For an adult or a child older than 18 months :

- inability to walk 5 meters normally, and without help, lameness (not due to old age),
- inability to move hands and arms properly (not due to old age), as demonstrated by a simple functional test

For a child younger than 18 months:

- absence (partial or total) of one limb or more,
- Inability to move legs and arms properly, or strange movements,
- deformity of limbs or trunk

Returnee : a person who had been living outside Afghanistan, and settled in the Kandahar region after the Mudjahedeen took power in 1992.

Poliomyelitis: we used the following clinical case definition as recommended by WHO[4]:

1. Inability to walk normally as observed by a qualified health worker,
2. Flaccid paralysis as manifested by decreased muscle strength,
3. Normal sensation in the affected limb(s) as determined by response to pinprick

AND

1. Condition not present at birth
2. No progression of paralysis after early stage of onset,
3. No association with major trauma
   Association with injection was recorded separately.

Rehabilitation needs : needs defined by a health professional (as opposed to needs perceived by the patient).

3.3 Practical organisation of field work

3.3.1 Preparation

Four English-speaking supervisors were recruited, each from one of the 4 districts surveyed. Their role was to supervise the population data collected by the interviewers in the selected households, to collect data on polio vaccine coverage, and to fill a questionnaire for the disabled persons. It was not possible to find persons with a medical background. Supervisors were trained during one month in HI workshop to be able to identify causes of disability and rehabilitation needs.

Interviewers (8, at least one from each district surveyed) couldn't speak English. Training focused on communication skills. In particular, several role games allowed to identify the best techniques to obtain proper data. For instance, it was considered as offensive for a men to ask for the number of women in a household.

Several field tests were conducted in non selected area prior to the survey. All clusters selected were visited before the survey. Local leaders got information concerning the survey and its objectives. None of them refused to participate.

Two computer clerks were responsible for data entry.

No Afghan women could be part of the survey team: due to the nature of the Islamic regime, it is very difficult for them to work in the province.

3.3.2 Data collection and ascertainment of outcome

Data collection took place from June 13, 1996 to June 30, 1996. Each cluster was visited by an expatriate woman one or two days before the survey, to inform on the survey, and to improve its credibility and acceptability, in particular as regards women. One of our major concern was that data on women could not be collected due to the refusal of the head of the household.

3.3.2.1 Disability survey

In each cluster, a team of 2 interviewers went from house to house to collect population data and identify houses with a disabled person. Male disabled were further assessed by the supervisor of this team. Female disabled were assessed by a female expatriate. If the disabled person was not present, some information was gathered from a relative and recorded only if it was found reliable. Disabled identified were referred to ART or HI workshop in Kandahar City.

3.3.2.2 Oral polio vaccine coverage survey

Children were taken from the first households visited in the cluster, until completing at least the required number of 8 children. All eligible children in these households were included, so that the total number of children per cluster sometimes is more than 8.

<u>Oral Polio Vaccine doses</u> : a dose was recorded as 'on card' if certified by an immunisation card; it was recorded as 'by history' if reported by the caretaker, but not certified by an immunisation card.

UNIVERSITE CATHOLIQUE
DE LOUVAIN



Faculté de Médecine

Département de Santé Publique
Unité d'Epidémiologie

HANDICAP
INTERNATIONAL

Medical Programs using appropriate
technology to rehabilitate
handicapped persons

A HOUSEHOLD SURVEY IN KANDAHAR PROVINCE, AFGHANISTAN

June 1996

DISABILITY PREVALENCE

REHABILITATION NEEDS

ORAL POLIO VACCINE COVERAGE

FINAL REPORT

This survey has been funded by the European Community Humanitarian Office (ECHO)